



Docket No.: 1454.1629

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Martin BOSSERT et al.

Serial No. 10/553,411

Group Art Unit: 2617

Confirmation No. 3710

Filed: October 17, 2005

Examiner: Ho, Huy C.

For: METHOD AND TRANSMITTER FOR TRANSMITTING DATA IN A MULTI-CARRIER
SYSTEM VIA A NUMBER OF TRANSMITTING ANTENNAS

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the final Office Action mailed June 8, 2010, and having a period for response set to expire on September 8, 2010.

Applicants request review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal and the requisite fee.

If there are any additional fees associated with filing of this Request, please charge the same to our Deposit Account No. 19-3935.

REMARKS

Claims 9-20 are pending and under consideration. Claims 9, 13, and 20 are the independent claims.

A pre-appeal brief panel review of the identified appealable issue I discussed below is requested.

I. The cited prior art, alone or in combination, does not teach or make obvious all of the recited features of the claims

In the final Office Action, independent claims 9, 13, and 20 are rejected under 35 U.S.C. §103 as allegedly being unpatentable over “Foschini” (U.S. Patent App. Pub. No. 2002/0142723) in view of “Walton” (U.S. Patent App. Pub. No. 2004/0081131).

Claim 9, for example, recites “using a plurality of subcarriers of a frequency band and a plurality of antennas for transmission such that each antenna transmits data using the plurality of the subcarriers.” The Examiner indicates that this feature of claim 9 is disclosed in Foschini. However, this is submitted to be incorrect. According to Foschini, substreams are either sent once, if their number fits the number of antennas, or cycled, if the antenna number does not fit the substream number. Thus, in Foschini, no antenna sends each substream, as recited in claim 9, for example. Thus, it is submitted that Foschini does not teach this feature of claim 9 as indicated by the Examiner.

Claim 9, for example, recites “dividing data for transmission into a plurality of elements such that the number of data elements corresponds to the number of subcarriers.” The Examiner indicates that this feature of claim 9 is disclosed in Foschini. However, this is submitted to be incorrect. Foschini, as relied on by the Examiner, merely discloses dividing a stream into a number of substreams, which is equal to the number of antennas, and that the number of substreams may be higher than the number of antennas and, therefore, has to be cycled. Thus, Foschini merely discloses that the number of antennas and the number of substreams may be the same. However, there is no indication in Foschini that the number of substreams is equal to the number of subcarriers. Thus, it is submitted that Foschini does not teach this feature of claim 9 as indicated by the Examiner.

Furthermore, claim 9, for example, recites “for each antenna, assigning each element to a subcarrier for transmission, such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier.” The Examiner acknowledges that Foschini does not teach two antennas transmit different elements on one subcarrier. The

Examiner attempts to make up for this deficiency in Foschini with Walton and states that Walton teaches two antennas transmit two elements on a subband. However, it is submitted that the Examiner has incorrectly applied the disclosure of Walton and that Walton fails to make up for the deficiency in Foschini as indicated by the Examiner.

More specifically, the Examiner appears to be incorrectly using the terms subband and subcarrier interchangeably. However, one of ordinary skill in the art would clearly appreciate the difference between the terms subband and subcarrier in the context of OFDM. A subband consists of different carriers, so using the same subband for transmission does not mean that the same carrier out of this subband is used. Particularly, it is noted that sending one signal s_1 and s_2 using one subband k and sending another signal s_1^* and s_2^* using another subband $(k+1)$ does not disclose that a carrier has been used, especially a carrier that is the same for two elements. In OFDM, an OFDM carrier signal is the sum of a number of orthogonal sub-carriers. Walton discloses that with OFDM, each subband is associated with a respective carrier that may be modulated with data. As such, Walton merely discloses that two elements are sent using the subbands and does not disclose that these two elements are sent on the same subcarrier because they could be sent on any of the subcarriers of such a subband. Thus, in contrast to the Examiner's allegation, Walton is silent with respect two antennas transmitting different elements on one subcarrier. As such, Walton does not teach "for each antenna, assigning each element to a subcarrier for transmission, such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier," as recited in claim 9 and, therefore, fails to make up for the deficiency in Foschini with respect to claim 9.

Therefore, the subject matter of claim 9 is not obvious over Foschini in view of Walton because the cited prior art, alone or in combination, does not teach all of the recited features of claim 9.

By virtue of the dependency of claims 10-12 on claim 9, it is further submitted that claims 10-12 are not obvious over any combination of the cited prior art.

Independent claim 13 recites "using a plurality of subcarriers of a frequency band and a plurality of antennas for transmission such that each antenna transmits data using the plurality of the subcarriers" and "dividing data for transmission into a plurality of data elements such that the number of data elements corresponds to the number of subcarriers" and "for each antenna, assigning each element to a subcarrier for transmission, such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier."

Therefore, for at least the reasons discussed above, the subject matter of claim 13 is not obvious over Foschini in view of Walton because the cited prior art, alone or in combination, does not teach all of the recited features of claim 13.

Independent claim 20 recites "division means for dividing the data into a plurality of elements such that the number of elements corresponds with the number of subcarriers" and "assignment means for assigning each element to a corresponding subcarrier, the elements being assigned individually for each antenna such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier."

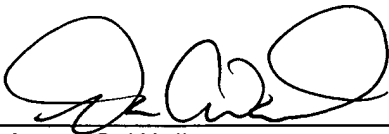
Therefore, for at least the reasons discussed above, the subject matter of claim 20 is not obvious over Foschini in view of Walton because the cited prior art, alone or in combination, does not teach all of the recited features of claim 20.

If there are any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

Respectfully submitted,

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Date: 9-8-10

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